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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,979	06/01/2001	Joseph C. Dettling	3919A (CON)	9458

7590 06/17/2004

Chief Patent Counsel
Engelhard Corporation
101 Wood Avenue
P.O. Box 770
Iselin, NJ 08830-0770

EXAMINER
MCHENRY, KEVIN L

ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

CF

Office Action Summary	Application No.	Applicant(s)	
	09/873,979	DETTLING ET AL.	
	Examiner	Art Unit	
	Kevin L McHenry	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1,2,6,9,10,14,17-20,24,27,28,32 and 35-51 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,2,6,9,10,14,17-20,24,27,28,32 and 35-51 is/are rejected.

7)☒ Claim(s) 46 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 01 June 2001 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6/1/01 & 3/5/03 &.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 48" (see page 16, line 36). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 38". A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

On page 3, line 24 and on page 18, line 39, an application serial number is needed to fill in the blank.

Appropriate correction is required.

Claim Objections

4. Claim 46 is objected to because of the following informalities:

In line 10 of claim 46 the language "composition or selected from the group". The "or" is unnecessary and should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 14, 17, 18, 35, 36, 37, 44, and 51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 14 cites the language "at least one second inlet precious metal component" when a first precious metal component has not been previously cited in claims 9 or 10. For examination purposes the examiner interpreted this language to mean "at least one inlet precious metal component".

8. Claim 17 recites the limitation "the first inlet precious metal component" in lines 2-3 of claim 17. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the first layer".

9. Claim 17 recites the limitation "the second inlet precious metal component" in lines 3-4 of claim 17. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a

component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the second layer".

10. Claim 18 recites the limitation "the first inlet precious metal component" in lines 2-3 of claim 18. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the first layer".

11. Claim 18 recites the limitation "the second inlet precious metal component" in lines 3-4 of claim 18. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the second layer".

12. Claim 35 recites the limitation "the first inlet precious metal component" in lines 2-3 of claim 35. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the first layer".

13. Claim 35 recites the limitation "the second inlet precious metal component" in lines 3-4 of claim 35. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the second layer".

14. Claim 36 recites the limitation "the first inlet precious metal component" in lines 2-3 of claim 36. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the first layer".

15. Claim 36 recites the limitation "the second inlet precious metal component" in lines 3-4 of claim 36. There is insufficient antecedent basis for this limitation in the claim. This language is also indefinite because it is unclear how a precious metal is a component of the inlet. For examination purposes the examiner interpreted this language to mean "a precious metal component in the second layer".

16. Claim 37 recites the limitation "the first or second inlet layers" in lines 2-3 of claim 37. There is insufficient antecedent basis for this limitation in the claim because this claim depends upon claim 19, which can alternatively depend upon claim 1 or 10. Claim 1 does not provide antecedent basis for a second layer. For examination purposes the examiner interpreted this language to mean "the first or a second inlet layer".

17. Claim 44 recites the Markush group "flow through monoliths and wall flow monoliths" in lines 2-3 of claim 44. This claim depends upon claim 42, which depends upon claim 38, which in turn can alternatively depend upon claim 1 or 9. Claim 1 already limits the article to a wall flow structure. For examination purposes the examiner interpreted claim 44 to mean "wherein the honeycomb is a wall flow monolith."

18. Claim 51 recites the limitation "the first rare earth metal oxide" in line 3 of claim 51. There is insufficient antecedent basis for this limitation in the claim. For

examination purposes the examiner interpreted this language to be deleted from the claim.

Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 1, 2, 38, and 42-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Domesle et al. (U.S.P. 4,588,707).

Domesle et al. teach a wall flow ceramic honeycomb substrate with an inlet end and an outlet end that has wall elements that form a plurality of channels. Catalyst compositions of rare earth oxides are coated to the inlet end and outlet, with a noble metal being preferably coated at the outlet end. (See U.S.P. 4,588,707; column 1, lines 63-68; column 2, lines 1-18, 37-44; column 3, lines 19-50).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 38-44, 46, and 51 rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/09848 in view of Domesle et al. (U.S.P. 4,588,707).

WO 92/09848 teaches a ceramic or metallic honeycomb substrate for treatment of exhaust gases. WO 92/09848 teaches the use of rare earth catalyst coatings for the substrate, particularly coatings of palladium with alumina or zirconia. The substrate may have multiple zones of catalyst coatings with a zone having more than one catalyst coating. The coatings of different zones may overlap and the thickness of the catalyst coatings may vary or be graded so that the coatings taper until a zone of uncoated substrate is achieved. (See WO 92/09848; Figures 1a-1d, 2a-2d; pages 12-15).

WO 92/09848 does not teach that the substrate is a wall flow substrate.

Domesle et al. teach a wall flow ceramic honeycomb substrate with an inlet end and an outlet end that has wall elements that form a plurality of channels. Catalyst compositions of rare earth oxides are coated to the inlet end and outlet. Domesle et al. teach that a wall flow substrate is useful because it causes gases to flow through pores and the wall, causing impurities to be filter from exhaust gases. Domesle et al. teach that this is particularly useful for filtering Diesel soot from exhaust gas. (See U.S.P. 4,588,707; column 1, lines 63-68; column 2, lines 1-18, 37-44; column 3, lines 19-50).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the substrate of WO 92/09848 by the teachings of Domesle et al. One would have been motivated to do so in order to provide a substrate that was useful for filtering impurities from exhaust gases, particularly Diesel soot, as taught by Domesle et al.

23. Claims 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/09848 in view of Domesle et al. (U.S.P. 4,588,707) as applied to claims 1, 2, 6, 9, 10, 14, 17-20, 24, 38-44, 46, and 51 above, and further in view of Hu et al. (U.S.P. 6,044,644).

The former references teach the substrate described above in section 22. However, these references do not teach the use of oxygen storage components.

Hu et al. teach catalyst supports for processing engine exhaust in which an upstream catalyst support lacks oxygen storage components, such as ceria and praseodymium oxide, while a downstream support includes these oxygen storage components. Hu et al. teach that this arrangement is beneficial for reducing engine emissions during engine cold starts. (See U.S.P. 6,044,644; column 1, lines 5-11; column 6, lines 51-57; column 9, lines 37-51; column 10, lines 55-58).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the substrate taught above by the teachings of Hu et al. One would have been motivated to do so in order to provide a substrate that would reduce emissions during engine cold starts, as taught by Hu et al.

24. Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, 35, 36, 38, 40, 42-46, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahata et al. (U.S.P. 5,376,610) in view of Domesle et al. (U.S.P. 4,588,707).

Takahata et al. teach a porous substrate for exhaust gas purification that may include multiple layers of catalyst coatings at the inlet and outlet of the substrate. The first catalyst layer may include transition metal oxides such as alumina along with noble metals such as Rh, Pt or Pd. A second catalyst layer may then be coated over the first; the second layer includes transition metal oxides such as alumina, may include zeolites, and may include noble metals such as Pt or Pd. The upstream and downstream portions of the substrate may have different compositions of catalyst layers. (See U.S.P. 5,376,610; column 4, lines 36-62; column 5, lines 17-26, 40-42, 50-54; column 7, lines 33-38; column 8, lines 36-44; column 9, lines 16-17, 33-44; column 11, lines 6-17; column 12, lines 48-68; column 13, lines 23-59; column 15, lines 46-57; column 16, lines 8-28).

Takahata et al. do not teach the use of a wall flow substrate or that a coating may lack a noble metal.

Domesle et al. teach a wall flow ceramic honeycomb substrate with an inlet end and an outlet end that has wall elements that form a plurality of channels. Catalyst compositions of rare earth oxides are coated to the inlet end and outlet, with a noble metal being preferably coated at the outlet end. Domesle et al. teach that a wall flow substrate is useful because it causes gases to flow through pores and the wall, causing impurities to be filter from exhaust gases. Domesle et al. teach that this is particularly useful for filtering Diesel soot from exhaust gas. (See U.S.P. 4,588,707; column 1, lines 63-68; column 2, lines 1-18, 37-44; column 3, lines 19-50).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the substrate of Takahata et al. by the

teachings of Domesle et al. One would have been motivated to do so in order to provide a substrate that was useful for filtering impurities from exhaust gases, particularly Diesel soot, as taught by Domesle et al.

25. Claims 37, 39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahata et al. (U.S.P. 5,376,610) in view of Domesle et al. (U.S.P. 4,588,707) as applied to claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, 35, 36, 38, 40, 42-46, and 51 above, and further in view of WO 92/09848.

The former references teach the substrate taught above in section 24. However, these references do not teach that coatings from different catalyst zones may overlap or that there may be at least three catalyst zones.

WO 92/09848 teaches a catalytic substrate for processing exhaust gas. The substrate may have three zones of catalyst coatings and the coatings may overlap between zones. WO 92/09848 teaches that this arrangement may be used to provide higher catalyst activity at the front edge of the substrate, providing a lower light-off temperature and no "hot-spotting" in the latter portion of the catalyst. (See WO 92/09848; Figures 1a-1d, 2a-2d; page 14-15).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the substrate described above by the teachings of WO 92/09848. One would have been motivated to do so in order to provide a substrate with a lower light-off temperature and no "hot-spotting" in a latter portion of the substrate, as taught by WO 92/09848.

26. Claims 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahata et al. (U.S.P. 5,376,610) in view of Domesle et al. (U.S.P. 4,588,707) as applied to claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, 35, 36, 38, 40, 42-46, and 51 above, and further in view of Hu et al. (U.S.P. 6,044,644).

The former references teach the substrate described above in section 24. However, these references do not teach the use of oxygen storage components.

Hu et al. teach catalyst supports for processing engine exhaust in which an upstream catalyst support lacks oxygen storage components, such as ceria and praseodymium oxide, while a downstream support includes these oxygen storage components. Hu et al. teach that this arrangement is beneficial for reducing engine emissions during engine cold starts. (See U.S.P. 6,044,644; column 1, lines 5-11; column 6, lines 51-57; column 9, lines 37-51; column 10, lines 55-58).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the substrate taught above by the teachings of Hu et al. One would have been motivated to do so in order to provide a substrate that would reduce emissions during engine cold starts, as taught by Hu et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin McHenry

Kiley Stoner 6/14/04

Kiley Stoner AU 1725